COUNTY OF SUFFOLK

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STANDARDS

APPROVAL OF PLANS AND CONSTRUCTION - - SEWAGE DISPOSAL SYSTEMS FOR SINGLE-FAMILY RESIDENCES

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FIGURES

STANDARDS
APPROVAL OF PLANS AND CONSTRUCTION --
SEWAGE DISPOSAL SYSTEMS FOR SINGLE-FAMILY RESIDENCES

5-101 INTRODUCTION

A. The purpose of these standards is to assure a safe, sanitary means of disposing of household wastewater. Properly designed, maintained and operated sewage disposal systems minimize the possibility of disease transmission and the potential for contamination of ground and surface waters.

B. These are Standards for the Suffolk County Department of Health Services for the Administration of Section 760-502, of Article 5 (Sewage Disposal), and Section 760-710 of Article 7 of the Suffolk County Sanitary Code. Facilities designed and constructed in compliance with these Standards will be in compliance with these sections of the Suffolk County Sanitary Code.

C. The information presented in these Standards applies to buildings used as a single-family residence(s) and only addresses sewage as herein defined. Other solid, liquid or gaseous emissions are subject to a separate review and approval by the Department. For details relating to other than single-family residences, refer to "Standards for Approval of Plans and Construction for Sewage Disposal Systems for Other Than Single-Family Residences".

5-102 DEFINITIONS APPLICABLE TO THESE STANDARDS

Absorption Area - An area to which wastewater is distributed for infiltration to the soil.

Alternative System - A subsurface sewage disposal system which contains components or design elements not explicitly described in these Standards.

Backfill - 1) The operation of refilling an excavation, usually after some structure or pipe has been placed therein; 2) the material placed in an excavation in the process of backfilling.

Building Sewer - The sewer line which extends from the building to the sewage disposal or sewer system.

Department - The Suffolk County Department of Health Services.

Design Flow - The volume of sewage to be used for the purpose of designing the size of the sewage disposal system.

Design Professional - a person licensed or registered in the State of New York and authorized by the State Education Law to design the systems described in these Standards.

Groundwater - The subsurface water occupying the zone of saturation below the established water table.

Hydraulic Loading - The daily design volume of sewage discharged from the site.

Leaching Area - The sidewall absorption area in a leaching pool below the inlet pipe.

Leaching Pool - A covered pit constructed with a perforated, reinforced concrete wall through which septic tank effluent will infiltrate the surrounding soil.

Perched Groundwater - Groundwater which is separated from the main body of groundwater by an aquiclude (e.g. a clay lens).

Sewage - The combination of human and household waste with water which is discharged to the home plumbing system including the waste from a flush toilet, bath, sink, lavatory, dishwashing or laundry machine, or the water-carried waste from any other fixture, equipment or machine, together with such groundwater infiltration and surface water as may be present.

Septic Tank - A watertight chamber used for the settling, stabilizing and anaerobic decomposition of sewage.

Sewage Disposal System - Any plumbing or conveyances which result in or are capable of resulting in a discharge of sewage. This includes, but is not limited to, building sewers, septic tanks, leaching pools, sumps, tile fields, holding tanks, treatment works, outfalls and connecting piping. The term may also refer to a part of a larger disposal system.

Sewer Line - A pipe designed to convey sewage.

Sewer System - (also referred to as sewerage system, public sanitary sewer, municipal sewage disposal system, privately owned communal sewerage system, and communal sewage disposal system) Pipe lines, conduits, pumping stations, and force mains, and all other constructions, devices, and appliances appurtenant thereto, used for conducting sewage, to a point of ultimate disposal.

Single-Family Residence - A dwelling unit; one or more rooms with provision for living, cooking, sanitary and sleeping facilities arranged for the use of one family.

Subsurface Sewage Disposal System - A sewage disposal system designed to treat and dispose of septic tank or other treatment facility effluent by application of the effluent to a soil surface at a depth below the surface of the ground.

Treatment Works - A facility designed for the purpose of removing certain constituents from sewage by mechanical means, and stabilizing, and disposing of sewage.

5-103 PROHIBITIONS OF SUBSURFACE SEWAGE DISPOSAL SYSTEMS

A. The installation of a subsurface sewage disposal system(s) is prohibited when the site to be developed is within a sewer district or has an approved sewer system and treatment works available and accessible.

5-104 PLANS/PERMITS/APPROVALS REQUIRED

A. PLANS/PERMITS REQUIRED TO CONSTRUCT

1. *WRITTEN APPROVAL OF PLANS REQUIRED PRIOR TO CONSTRUCTION.* Written approval of plans is required before start of construction of any new sewage disposal system. Plans shall be prepared by a Design Professional and shall conform to guidelines issued by the Department. Plans shall be prepared on plot surveys. These plans, once signed and approved by an authorized representative of the Department, become a permit to construct. Refer to Department bulletin "Procedure & Requirements for Residential Construction", Form #WWM-041(latest revision). Plan approval is not required for additions (overflows) to existing residential sewage disposal systems, but these Standards shall be used as a guideline for construction.

2. *PERMITS REQUIRED FOR ALL NEW SEWAGE DISPOSAL SYSTEMS.* Permits are required for all new sewage disposal systems including, but not limited to, those servicing new single-family residences, home additions, and accessory structures.

3. *DESIGN SYSTEM FOR LIFETIME OF FACILITY.* In addition to providing for the public health and the environment, there must be reasonable assurance that a system will be able to remain in satisfactory service without incurring large capital reinvestment over the lifetime of the facility. The sewage disposal systems permitted pursuant to these standards should remain functional for the lifetime of the facility from which they receive the sewage discharge.

4. *RESPONSIBILITY OF DESIGN PROFESSIONAL.* The Design Professional retained to design the sewage disposal system shall be responsible for all aspects of the system design. That responsibility includes gathering all design information as necessary, making the site evaluation, and creating the design. These Standards shall not be construed as providing sufficiently detailed guidance as to relieve the Design Professional from undertaking whatever additional steps or measures that may be necessary to achieve an appropriate design.

5. *PERMITS FROM OTHER AGENCIES.* Permits from other agencies, where such permits may affect placement of the sewage disposal systems, shall be submitted to the Department prior to the Department's issuance of a permit to construct. Such permits include, but are not limited to, wetlands or natural resources permits from the New York State Department of Environmental Conservation, the Army Corps of Engineers, and/or the appropriate local regulatory authority (e.g. delegated agents for administration of New York State Environmental Conservation Law (NYSECL) Articles 15, 24, 25; Wild, Scenic & Recreational Rivers; Town Natural Resources Permits; etc.).

B. CERTIFICATION OF CONSTRUCTION REQUIRED (FINAL APPROVAL)

1. *SINGLE FAMILY RESIDENCES COVERED HEREIN.* Sewage disposal systems for single-family residences in Suffolk County shall be constructed to conform to these Standards. Applicants are required to obtain Department certification of conformance to these Standards.

2. *BACKFILLING INSPECTION PROCEDURES.* Prior to backfilling, the installed sewage disposal system shall be inspected and authorized for backfilling by a representative of the Department. In the case of buildings to be served by sewers, the Sewer District is usually the designated representative of the Department. Otherwise, the Department shall be notified at least forty-eight (48) hours in advance of scheduled backfilling. Failure to contact the Department to observe the backfilling process may result in re-excavation of backfill. No approval or permit will be made or issued by the Department unless there is compliance with these requirements.

3. *"AS BUILT" PLANS REQUIRED.* Certification of completed construction will be granted to the applicant on "as built" plans which are to be submitted after the final satisfactory field inspection is completed. These plans shall include accurate measurements from permanent, fixed reference points to each component of the sewage disposal system and the water supply well or public water service line. These plans are to be signed and sealed by a design professional.

4. *SEPARATE CERTIFICATION OF CONSTRUCTION MAY BE REQUIRED.* In some cases, the Department may also require a separate certification of construction by a licensed design professional. Occupancy of a building or discharge to any sewage disposal system is prohibited without the final approval/certification of construction issued by the Department. Refer to bulletin on "Requirements for Single Family Construction", Bulletin Number WWM-041(latest revision), for more details.

5-105 SITING OF SUBSURFACE SEWAGE DISPOSAL SYSTEMS

A. PRIORITY FOR SEWAGE DISPOSAL SYSTEM

Because the failure of a sewage disposal system has the potential for significant public health impacts, first priority during planning shall be given to the location of sewage disposal systems over the location of other improvements on the property.

1. *CONSIDER ALL FACTORS CAREFULLY.* The design professional is responsible to carefully consider the significance of the existing and proposed topography, soils, locations of existing and proposed water supply wells, surface waters and wetlands, groundwater conditions, and the planned locations of other improvements such as foundations, driveways, and construction on adjacent properties, property lines and other limitations of a physical or legal nature.

2. *A SUPERIOR SITE SHALL NOT BE FOREGONE.* A disposal site available prior to development which is adequate for installation of a disposal system which can conform to these standards shall not be sacrificed to enhance the siting of other improvements being considered for the site.

B. SITE CONDITIONS PROHIBITED. Sewage disposal systems shall not be located:

1. In areas with a surface elevation lower than the 10 year flood level;

2. In any area subject to imminent erosion, which cannot be controlled so as to protect the sewage disposal system;

3. In areas where the maximum high groundwater level is less than one foot below the original ground surface;

4. In areas with slopes greater than 15%;

5. In areas where the existing subsoils contain meadow mat, bog, silts, clays, or other impervious material extending below the groundwater table;

6. In areas where groundwater conditions are not conducive to the proper functioning of subsurface sewage disposal systems;

7. In a swale;

8. Where the topography concentrates runoff onto or into the area where the system is proposed;

9. Where surface water discharges would be induced to artificially raise the groundwater level below the system;

10. In any area or under any part of a building, roadway, driveway, or other improvement that does or may prevent reasonable access for repair or maintenance of the system.

C. SITE CONDITION REQUISITES. Sewage disposal systems shall be located:

1. On land owned in fee by the Applicant;

2. On the same parcel as the building to be serviced;

3. In an unimproved area which allows adequate access for maintenance and fifty percent expansion of the leaching facilities. Deepening the system is not permitted in lieu of providing this expansion area;

4. In the "front yard". A location other than the front yard will be considered in order to protect drinking supply wells and to accommodate unique grading situations, provided it is in conformance with the other aspects of these Standards;

5. At least sixty-five (65) feet from bluffs or landward of the dwelling;

6. The minimum separation distances for subsurface sewage disposal systems are presented in Table 1.

5-106 SUBSOIL AND GROUNDWATER CRITERIA FOR SUBSURFACE SYSTEMS

A. SOIL INVESTIGATION

Subsoil conditions shall be shown on the plan. The nature of the soil shall be determined by excavation of one or more test holes at the site of the proposed subsurface sewage disposal system. The soil investigation shall be subject to the following conditions:

1. *TEST HOLES.* The test hole shall be carried to a depth of six feet in excess of the proposed leaching pool bottom or, in the case of unusual soil, until a strata of six feet of sand and gravel, acceptable to the Department, is encountered. The test holes shall be a minimum of seventeen (17) feet deep or six feet into groundwater. A test hole log and grade elevation at the test hole location shall be indicated on the plan.

2. *RESPONSIBILITY OF DESIGN PROFESSIONALS.* The design professional, by providing this information on the submitted plan, is considered as certifying the results. Test holes listed as "by others" are unacceptable unless independently certified by a design professional. Test holes undocumented as to time and location of test are not acceptable.

3. *ADDITIONAL TEST HOLES.* Additional test holes witnessed by a representative of the Department may be required prior to approval to construct in areas of unusually poor soils or where data on record with the Department indicates inconsistent conditions.

4. *REMOVAL OF SOILS UNSUITABLE FOR LEACHING POOLS.* Unsuitable soils shall be removed and replaced with sand and gravel, acceptable to the Department, for a diameter six feet greater than the leaching pool (three foot collar) extending down into a minimum six foot strata of acceptable sand and gravel. In those areas where these criteria cannot be met, consult the Department. Percolation tests will be required in accordance with 10 NYCRR, Appendix 75A.4 for absorption systems where groundwater is less than or equal to eight feet below grade and where unsuitable soils cannot be removed.

B. GROUNDWATER INVESTIGATION

Groundwater elevation, if encountered shall be shown on soil test logs submitted on plans. The plans are subject to the following conditions:

1. *MEAN HIGH TIDE*. In areas subject to tidal action, groundwater elevations shall be measured at mean high tide and be so noted on plans.

2. *GRADING PLAN REQUIRED IF LESS THAN SEVEN FEET TO GROUND WATER.* In cases where groundwater elevation is less than seven feet below surface elevation a grading plan is required to be shown on the plans. The grading plan shall indicate plan and profile views of the disposal system, the residence first floor and the waste pipe invert, respectively, and final grade elevation. The plan view shall indicate final grade by showing one foot contour lines for at least twenty (20) feet from the leaching system.

C. DEPARTMENT INSPECTION PRIOR TO INSTALLATION

In the case of unacceptable soil and/or groundwater conditions, inspection of the excavation by a representative of the Department is required prior to the installation of the leaching pool.

5-107 MINIMUM SYSTEM REQUIREMENTS

A. SEPTIC TANK CAPACITY

Septic tank minimum capacity shall be provided in accordance with Table 2.

B. LEACHING POOL LEACHING AREA

The minimum leaching area is specified in Tables 3 and 4.

5-108 CONSTRUCTION MATERIAL REQUIREMENTS

A. DEPARTMENT APPROVAL REQUIRED

All materials used in the sewage disposal system shall be approved by the Department prior to use.

B. APPROVAL PROCEDURE

1. *DESIGN DRAWINGS.* Drawings of products which meet the functional design criteria of this code and which contain thereon the signed, dated manufacturer's certification as to the structural integrity of the designed and manufactured product for the purpose intended shall be filed with the Department.

2. *APPROVED PRODUCT DRAWINGS KEPT IN DEPARTMENT FILE.* Once approved, a copy of the product drawing shall be kept on file in the Department. Products so approved are approved for general use and do not require further or repeated product submittal or approval unless such approval is withdrawn by the Department.

C. PRODUCT IDENTIFICATION

All materials shall be identified as to manufacturer and have the identification visible at the time of inspection.

D. GUIDELINES USED BY THE DEPARTMENT

Compliance with the National Sanitation Foundation, The American Society of Testing and Materials and/or The American Water Works Association requirements and specifications shall be used as a guideline in reviewing applicable materials of construction for approval by the Department.

5-109 SEPTIC TANK REQUIREMENTS

A. SEPTIC TANK CONSTRUCTION CRITERIA (See Figures 1, 2 & 3)

1. *TYPICAL CONFIGURATIONS.* Typical septic tank configurations are shown in Figures 1, 2, & 3. Alternate tank configurations may be accepted if designed in accordance with 10NYCRR, Appendix 75-A.

2. *INVERT SEPARATION AND LIQUID LEVEL.* The outlet invert shall be six inches below the inlet invert. The invert must be a minimum of four feet above the tank bottom, unless the tank is otherwise designed in accordance with 10NYCRR, Appendix 75-A.

3. *AIR SPACE.* There shall be a minimum one foot air space measured from the outlet invert to the bottom of the tank cover.

4. *ACCESS OPENINGS, COVER AND CASTING.* There shall be one 20-inch diameter covered opening located over the inlet and a second opening provided over the outlet. The outlet opening shall be equipped with a 20-inch diameter watertight and insect-proof locking cast-iron cover at final grade.

5. *TRAFFIC TOPS FOR TRAFFIC CONDITIONS.* When a septic tank is approved to be installed in a driveway or parking area, traffic bearing tops shall be used.

6. *COMPRESSIVE STRENGTH REQUIREMENTS.* Concrete shall have a minimum compressive strength of 3,000 pounds per square inch (psi) at 28 days set.

7. *DESIGN STRENGTH AND WALL THICKNESS.* Wall thickness shall be a minimum of three inches unless the design has been certified by a New York licensed professional engineer as complying with all appropriate requirements for thin-wall construction. All walls, bottom and top shall contain reinforcing to resist an applied force of 300 pounds per square foot (psf).

8. *WATERTIGHT TANKS.* All joints shall be sealed so that the tank is watertight and certified as to watertightness after installation. Tanks that are cast in place must be certified by a licensed professional engineer and, as a minimum, have the floor and walls monolithically poured.

9. *GARBAGE GRINDERS REQUIRE SPECIAL SEPTIC TANK PROVISIONS.* An additional 250 gallons of capacity and seven square feet of surface area is required when a garbage grinder can reasonably be expected at the time of construction. A gas deflection baffle or other acceptable outlet modification and a dual compartment tank or two tanks in series shall also be provided.

10. *DESIGN TANKS ACCORDING TO 75-A.* Unless otherwise stated, tanks shall be designed based upon 10 NYCRR, Appendix 75-A.

B. SEPTIC TANK INSTALLATION STANDARDS

1. *INSTALL TANK ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.* All applicable recommendations provided by the manufacturer shall be implemented.

2. *INSTALL TANK LEVEL.* The septic tank shall be installed at level in all directions (with a maximum tolerance in any direction of +/- one quarter inch) on a minimum 3 inch thick bed of properly leveled and compacted sand (free from rocks) or pea gravel.

3. *DROP 'T' OR EQUIVALENT BAFFLE.* All outlets from the septic tank shall be provided with drop 'T' or equivalent baffle approved by the Department extending into the liquid one third of the liquid depth.

4. *GAS DEFLECTION BAFFLES.* Gas deflection baffles are recommended for installation below each effluent drop 'T'.

5. *SINGLE OUTLET.* Tanks shall be provided with a single outlet. A distribution box is required for all systems with multiple leaching pools unless an alternative design is approved by the Department. One acceptable alternative design is shown in Figure 9.

6. *MAXIMUM DIRECT FLOW PATH.* The outlet shall be located at the maximum possible flow path from the inlet.

7. *GROUND COVER OVER SEPTIC TANK.* The top of the septic tank shall not be located greater than four feet or less than one foot below final grade. For septic tanks with domes, the top of the dome shall not be located greater than two feet or less than one foot below final grade.

5-110 LEACHING POOL REQUIREMENTS

A. LEACHING POOL DESIGN AND CONSTRUCTION

1. *TYPICAL LEACHING POOL AND LAYOUT.* A typical leaching pool is shown in Figure 4. Typical leaching pool layouts are shown in Figure 5.

2. *DISTANCE TO GROUNDWATER.* The bottom of any leaching pool system shall be at least three feet above the highest recorded groundwater level at the proposed system's location and at least two feet for shallow alternative systems approved by the Department.

3. *ABSORPTION RATES.* For areas of sand and gravel, the design of the leaching pool shall be based upon a maximum leaching rate of 1.5 gallons of sewage per day per square foot of sidewall area. Minimum size disposal systems for sand and gravel conditions are given in Table 3 and Table 4.

4. *ONE TO FOUR BEDROOMS.* The minimum disposal systems for a one to four bedroom single-family residence are described in Table 3 (also see Figure 5).

5. *FIVE OR SIX BEDROOMS.* The minimum disposal systems for a five or six bedroom single-family residence are described in Table 4.

6. *PIPE DIRECTLY.* The leaching pools shall be piped directly from the septic tank or a distribution box (See Figure 5).

7. *PRECAST REINFORCED CONCRETE.* Leaching pools are to be constructed of precast reinforced concrete (or equal) leaching structures, solid domes and/or slabs.

8. *DIAMETER.* Leaching pools shall be a minimum of eight feet in outside diameter.

9. *MULTIPLE POOLS OF UNIFORM SIZE.* When more than one leaching pool is used, all pools shall be of nominally equal size.

10. *ACCESS OPENINGS.* Access openings with a minimum diameter of twenty (20) inches shall be provided for each pool as shown in Figure 4.

11. *GROUND COVER OVER LEACHING POOLS.* Leaching pool covers shall be at least one foot below grade, but not more than two feet. For deeper systems, "dummy" rings shall be used to bring the top of the slab or dome to within four feet of final grade.

12. *MAXIMUM DEPTH OF LEACHING POOL.* The maximum permissible depth of a precast concrete leaching pool is twenty-five (25) feet below grade.

13. *CHIMNEYS.* Leaching pool "chimneys" shall be of reinforced precast concrete, securely affixed, and may not exceed two feet in height; or four feet, if a locking cast-iron cover is installed at grade.

14. *SAND AND GRAVEL REQUIRED.* The effective leaching area of a leaching pool (below the inlet pipe) shall be installed entirely in sand and gravel, acceptable to the Department.

15. *DEBRIS.* The bottom and sidewall area of the leaching pools shall be free of debris before backfilling.

5-111 COVER REQUIREMENTS

A. PRECAST REINFORCED CONCRETE

All covers, when not required to be brought to grade, shall be of precast reinforced concrete (or equal).

B. DIAMETER

Covers over three feet in diameter are not permitted.

C. CAST-IRON COVERS

All cast-iron covers shall be set at finished grade, be locking, watertight, insect-proof, and be approved for sewerage use.

5-112 DISTRIBUTION BOX AND MANHOLE REQUIREMENT

A. MANHOLES OR CLEANOUTS

Manholes or cleanouts (see 5-113 A.5,8) shall be provided on sewer lines wherever there is a grade change or alignment change further than ten feet from the foundation and otherwise at intervals not exceeding 100 feet. Refer to Figure 6 for cleanout detail. This requirement does not apply to pipes under pressure. The following additional criteria apply to the design and construction of manholes.

1. The bottom of the manhole shall be coved or benched. The bench shall be the same width as the diameter of the pipe and shall extend upward at least three-quarters the diameter of the pipe.

2. The manhole shall have a minimum inside diameter of four feet and be reinforced precast concrete only.

3. The base and walls of the manhole shall be monolithically constructed of reinforced precast concrete.

4. There shall be a coupling located within four feet of the manhole on both the inlet and outlet side.

5. If the manhole is more than four feet in depth, rungs shall be provided every twelve inches.

6. The manhole shall be provided with a 24-inch diameter, locking, watertight and insect-proof cast-iron cover to grade, located so as to be over the rungs, if any are necessary.

7. For sewer lines connecting to community sewerage systems, the house connection shall not be piped directly to a system manhole. Consult the proper sewer authority, e.g. sewer district, for other design criteria.

B. DISTRIBUTION BOXES

Distribution Boxes. The following criteria apply to the design and construction of distribution boxes. Refer to Figure 7 for distribution box detail.

1. The base and walls of the distribution box shall be monolithically constructed of approved reinforced concrete, fiberglass, or plastic and installed in accordance with the manufacturer's instructions in addition to these requirements.

2. All outlets from the distribution box shall be at the same level to insure the even distribution of flow.

3. To minimize frost action and reduce the possibility of movement once installed, distribution boxes must be set on a bed of sand or pea gravel at least 12 inches thick.

4. The drop between inlet and outlet inverts shall be at least two inches. A baffle is required at the inlet side of the box when the pitch of the pipe from the septic tank to the box exceeds one-half inch per foot.

5. The distribution box shall have a minimum inside diameter of four feet.

6. Distribution boxes with bottoms more than four feet in depth from finished grade are not permitted.

7. The distribution box shall be provided with a twenty-four (24) inch diameter, locking, watertight and insect-proof cast-iron cover to grade.

5-113 SEWER LINE REQUIREMENTS

A. The following criteria apply to the design and construction of sewer lines for subsurface sewage disposal systems:

1. All sewer lines shall be a minimum of four inches in diameter.

2. There shall be a length of cast-iron sewer line extending through the foundation to a point a minimum of two feet beyond the foundation wall.

3. The sewer line from the building cast-iron pipe to the septic tank and to the leaching pool(s) shall meet or exceed commercial standards class 2400 sewer pipe, or ASTM standards for plastic sewer pipe with a minimum SDR 35 rating. In the Town of Huntington, cast-iron pipe is required between the building foundation and septic tank inlet.

4. Slip-ring connectors of the proper type shall be used at the cast-iron joint.

5. The sewer line from the building to the septic tank shall have a minimum pitch of one- quarter inch per foot and a clean-out or manhole every fifty (50) feet. Refer to Figure 6.

6. The sewer line from the septic tank to the leaching pool(s) shall have a minimum pitch of one-eighth inch per foot.

7. Sewer line trench(es) shall be firmly tamped. All backfill shall be firmly tamped by hand about the pipe. The pipe(s) shall be securely cemented at the point of entry into the septic tank and leaching pool(s).

8. There shall be no bends in the sewer lines to the septic tank. If bends are unavoidable, then, for bends within the first ten feet from the house foundation, the sewer line shall be constructed of cast-iron from the house foundation up to and including the bend. Long sweep elbows shall be used and bends shall not exceed forty-five (45) degrees as measured along the

axis of the starting pipe. For bends further than ten feet from the house foundation an approved manhole or clean-out shall be installed. For projects with a large number of bends consult the Department prior to installation.

9. All sewer lines shall be straight. When sections of pipes are used, they shall be of the same material and connected with couplings of the same material. The couplings shall be securely installed and watertight. Directional changes through the use of appurtenances may be permitted if absolutely necessary.

10. When using more than one typical leaching pool, all sewer lines from the distribution box to the pools shall be set in the distribution box at the same elevation.

5-114 ALTERNATIVE SYSTEMS

A. The treatment systems addressed thus far in these Standards are considered conventional or typical systems and may be used on sites with adequate soil percolation and vertical/horizontal separation distances unless otherwise prohibited. Many sites are not suitable for such systems. The purpose of these Standards is to assure proper treatment of sewage rather than to restrict use of land. In cases where conventional systems are not suitable, alternative designs of sewage disposal systems may be considered by the Department on a limited experimental basis or for replacement systems on difficult sites provided:

1. The system shall be designed by a licensed professional engineer.

2. It is clearly demonstrated that the proposed system is physically equivalent or better than the conventional systems, in respect to storage capacity, leaching area, land area utilization, grading, accessibility, maintainability, reparability, life expectancy, energy usage, effluent quality and reliability.

3. An engineering report determines that the proposed design is most suitable for the building site and that the proposed sanitary system will function properly without causing any health hazard and will minimize the impact on the surrounding environment.

4. The design professional supervises the installation of the system and certifies that the system was built in accordance with the approved plan and submits as-built plans of the system.

B. Alternative systems, on an experimental basis, are inappropriate for realty developments or subdivisions and will not be approved for same.

5-115 OTHER SYSTEMS

A. In the event it is determined that any of the following types of disposal systems are necessary, they will be considered by the Department provided a conventional subsurface sewage disposal system is provided, capable of meeting the requirements of these Standard and the following special conditions:

1. *Holding tanks.* Such tanks shall meet the same construction requirements as a septic tank, except that the holding tank shall not have an "outlet". Volume of the tank shall be determined by the Department.

2. *Composters.* These units shall be installed in accordance with the manufacturers instructions. The units shall have a label indicating compliance with the requirements of the National Sanitation Foundation (NSF) Standard 41 or equivalent. Only units with a five-year warranty or more shall be installed.

5-116 SEPARATION OF WATER AND SEWER LINES

A. The following criteria shall apply to the installation of sewer lines in respect to water lines:

1. PARALLEL INSTALLATION

a. Water lines shall be laid at least ten feet horizontally from any sewer line.

b. When local conditions prevent a horizontal separation of ten feet, a water line may be laid closer to a sewer line provided that the bottom of the water line is at least eighteen (18) inches above the top of the sewer line. When this vertical separation cannot be obtained, the sewer line shall be constructed of materials and joints that are equivalent to water main standards of construction and shall be pressure tested to assure water tightness prior to backfilling.

2. CROSSINGS

a. The crossing of water and sewer lines should be avoided unless proven absolutely necessary. In such cases:

1) sewer lines shall be laid below the water line and provide a separation of at least eighteen inches between the bottom of the water line and the top of the sewer line; and

2) sewer line joints shall be at least ten feet from the point of crossing.

b. When local conditions prevent placement of the water line above the sewer line, the following additional conditions apply:

1) a vertical separation of at least eighteen (18) inches shall be provided between the bottom of the sewer line and the top of the water line; and

2) water line joints shall be at least ten feet from the point of crossing; and

3) sewer lines shall be constructed of materials and joints that are equivalent to water main standards of construction for the entire length of the sewer line and shall be pressure tested to assure watertightness prior to backfilling.

5-117 FINAL GRADING AND BACKFILLING

A. FINAL INSPECTION

At the time of completion, the system shall be left visible for inspection. Prior to inspection, the bottom of the pipe trench shall be backfilled with granular material and stabilized to provide a firm bedding. The property lines shall be "staked" in order to ascertain that the system is located on the property in accordance with these Standards.

B. BACKFILL & GRADING

The completed system shall be backfilled and covered with suitable soil following approval to do so by the Department. The property shall be graded so as to minimize surface drainage into the system. A maximum five percent slope shall be maintained for a minimum of twenty (20) feet horizontally from the nearest edge of the leaching pool(s) before tapering off to prevent seepage of the leachate through the toe or edge of the slope. Steep grades further than twenty (20) feet from the leaching pools shall be stabilized pursuant to local codes.

C. RETAINING WALLS

1. In cases where the maximum five percent slope cannot be maintained, the utilization of retaining walls, or other means, may be approved. In such cases, the retaining walls, or other means, shall be designed by a licensed professional engineer or registered architect and be shown as part of a grading and plot plan. The plan shall be reviewed and approved by the Department prior to construction.

2. Retaining walls shall be designed in accordance with good engineering practice and applicable building codes. In addition, retaining walls cannot be closer than ten feet from the nearest part of the sewage disposal system. Retaining walls within twenty (20) feet of a leaching pool(s) shall be waterproof concrete.

5-118 SEWAGE EJECTOR SYSTEMS

A. All systems should be designed to flow by gravity. Only when absolutely necessary should pumps be used. In such cases, the sewage ejector system shall be designed by a licensed professional engineer and plans must be reviewed and approved by the Department prior to construction.

B. Minimum requirements shall include:

1. Dual pump system with easy access and removal; with a locking cast-iron cover to grade;

2. High-level alarm with interlock to annunciate upon startup of second pump;

3. Electronic control to alternate pump selected as lead pump;

4. Freeze protection;

5. Pump station located after outlet of septic tank;

6. Pump station and other related appurtenances located above the highest recorded groundwater table.

5-119 VARIANCES

A. The Commissioner of the Department of Health Services, on written application, may grant a variance, in accordance with Section 760-220 of the Suffolk County Sanitary Code, from a specific provision of these Standards in a particular case, subject to appropriate conditions, where such variance is in harmony with the general purpose and intent of the Standards, and when such application for a variance has been considered by a Review Board appointed by the Commissioner.

B. The Commissioner may impose more stringent requirements in a specific case when necessary to insure an adequate and satisfactory sewage and waste disposal system.

5-120 APPROVAL BY THE COMMISSIONER OF HEALTH SERVICES

In accordance with 760-221 of the Suffolk County Sanitary Code, the foregoing are Standards for Sewage Disposal Systems for Single-Family Residences approved by the Suffolk County Commissioner of Health Services and include the required details for submission of plans and other information to the Suffolk County Department of Health Services to assure conformity to the approved Standards. These Standards are effective **November 13, 1995**.

Revised 1/9/04

TABLE 1 - MINIMUM SEPARATION DISTANCE TO SEWAGE DISPOSAL SYSTEMS (IN FEET)

	Building						Wells (1)			
From the Nearest Part of	Cellar	Slab	Prop. Lines	Water Lines (3)	Leach Pools	Storm Drains	Public	Private	Surface Waters (2)	Swim Pool
Septic Tanks	10	5	5	10	8	20	175	75	75	20
Leaching Pools	10	10	5	10	8	20	200	100/150	100	20
Leaching Pool Addition	10	10	5	10	8	20	200	No closer than existing pool or 100		20

NOTES:

1. Distances between leaching pools and wells are based upon the depth of the well (s) involved or realty subdivision requirements. Refer to "Standards and Procedures for Private Water Systems".
2. Distances between leaching pools and wetlands are subject to approval by the New York State Department of Environmental Conservation prior to issuance of Suffolk County approval.
3. If proven to be absolutely necessary, water lines may be approved within 10 feet of a sewage disposal system, provided the water line is protected from contamination or disturbance (e.g. Installation of line inside a larger diameter line for protection).
4. Increased distance may be required, based upon site conditions.

TABLE 2 - MINIMUM SEPTIC TANK CAPACITIES

Number of Bedrooms	Minimum Tank Capacity (gallons)	Minimum Liquid Surface Area (sq. ft.)
1, 2, 3 or 4	1,000	27
5 or 6	1,500	41

NOTES:

Tank size requirements for more than six bedrooms shall be calculated by adding 250 gallons and seven square feet of surface area for each additional bedroom. A garbage grinder shall be equivalent to an additional bedroom for determining septic tank capacity.

TABLE 3 - MINIMUM LEACHING SYSTEM DESIGN FOR A ONE TO FOUR BEDROOM RESIDENCE

Depth to Groundwater	Minimum Leaching System (300 ft^2 sidewall area)
Over 17 feet	1 pool; 12' deep, 8' dia. or systems below
11 to 17 feet	2 pools; 6' deep, 8' dia. or system below
9 to 11 feet	3 pools; 4' deep, 8' dia.
less than 9 feet	Design Alternative System

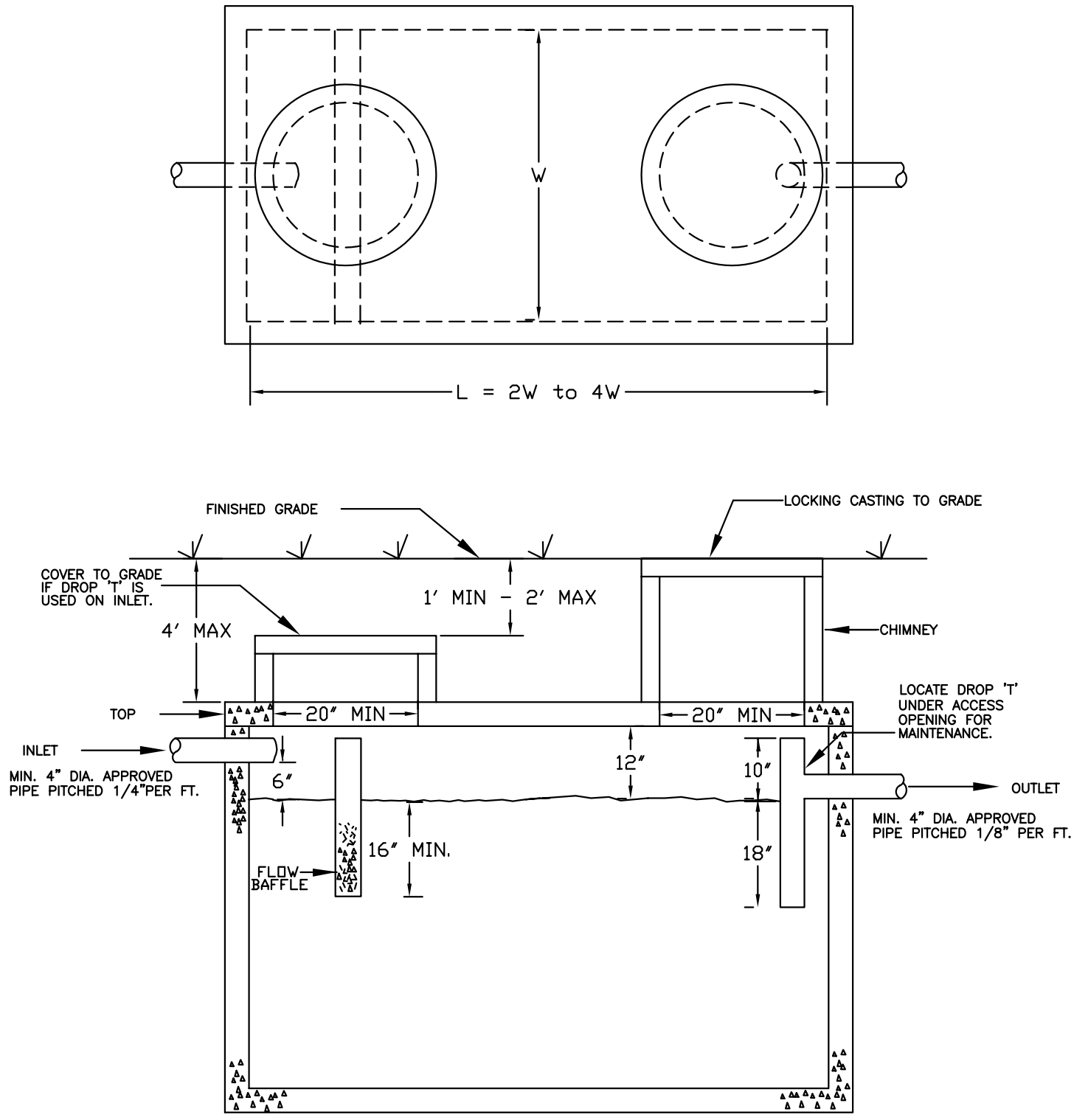
NOTES:
A distribution box is required for all multiple pool systems unless an alternative design is approved by the Department. For other designs involving larger diameter pools or deep systems (sewer lines greater than 4 feet below grade) contact the Department.

TABLE 4 - MINIMUM LEACHING SYSTEM DESIGN FOR A FIVE TO SIX BEDROOM RESIDENCE

Depth to Groundwater	Minimum Leaching System (400 ft^2 sidewall area)
Over 21 feet	1 pool; 16' deep, 8' dia. or systems below
13 to 21 feet	2 pools; 8' deep, 8' dia. or systems below
11 to 13 feet	3 pools; 6' deep, 8' dia. or system below
less than 11 feet	Design Alternative System

NOTES:
A distribution box is required for all multiple pool systems unless an alternative design is approved by the Department. For other designs involving more than six bedrooms, deep systems (sewer lines greater than 4 feet below grade) or larger diameter pools contact the Department.

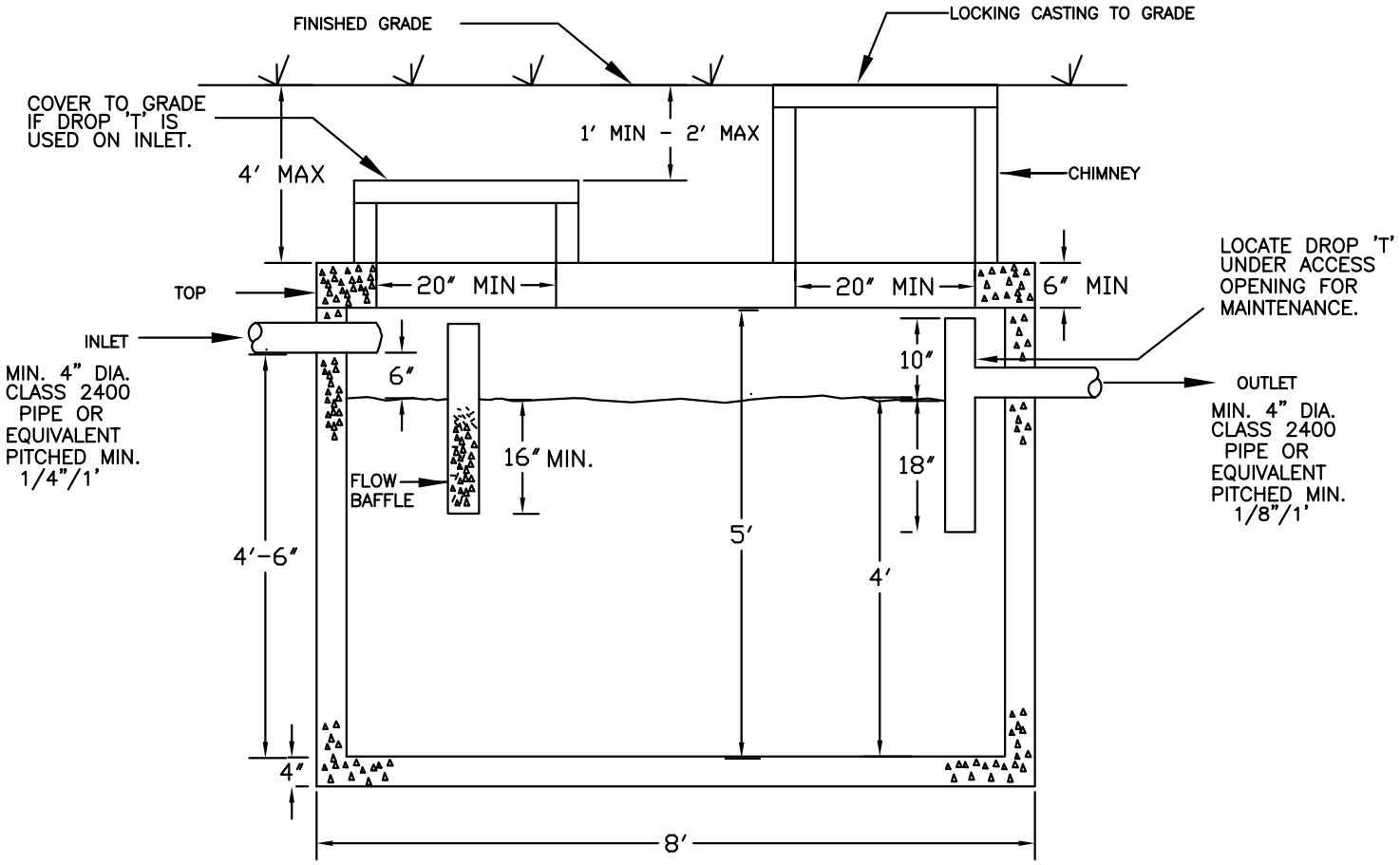
TYPICAL RECTANGULAR SEPTIC TANK*



*See Section 5–109 for Actual Design Details

FIGURE 2

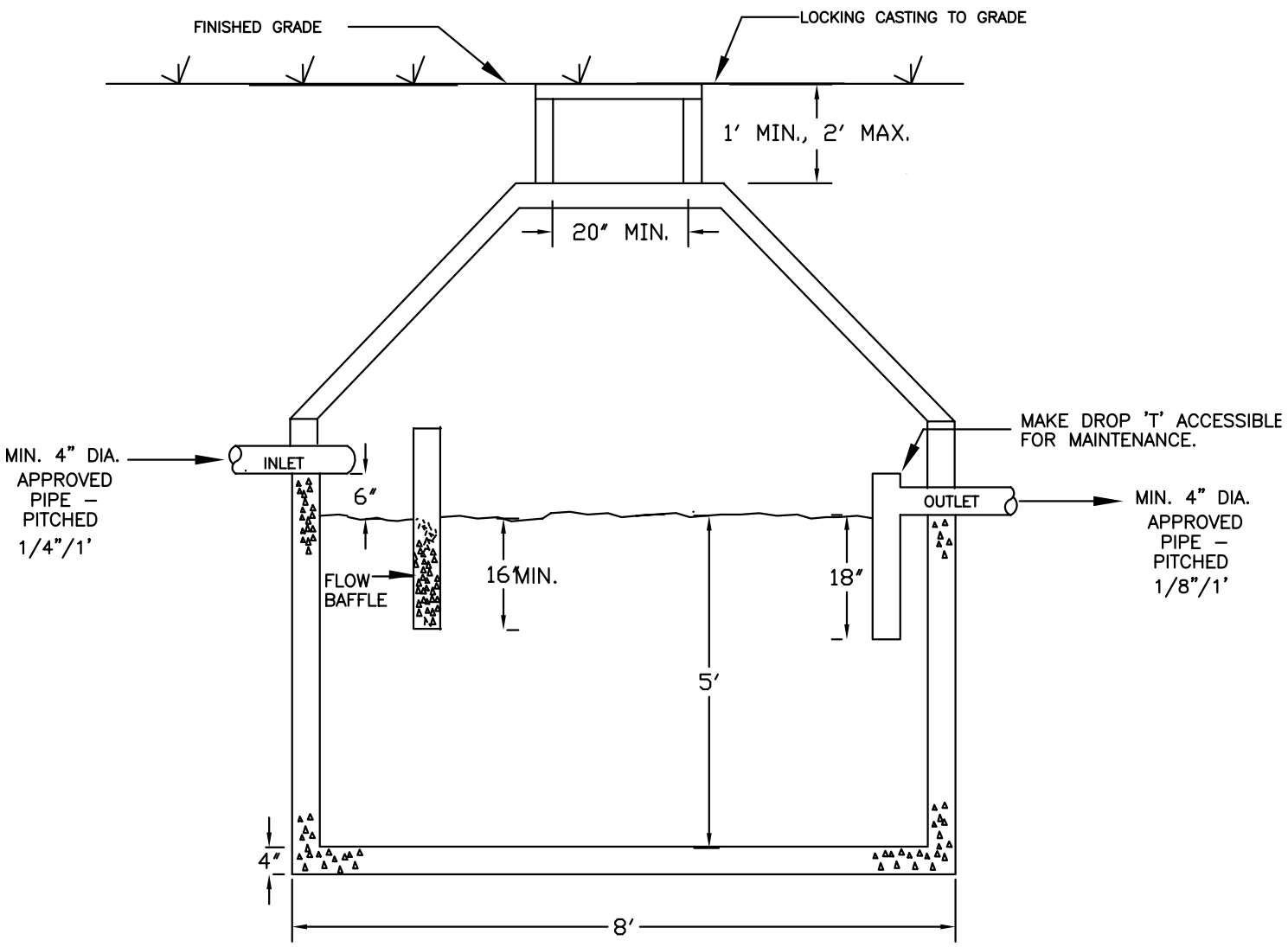
TYPICAL CYLINDRICAL 1250 GALLON SEPTIC TANK WITH SLAB



TYPICAL DETAILS OF CONSTRUCTION

1. A MINIMUM OF 4 INCHES APPROVED REINFORCED PRECAST CONCRETE BOTTOM AND 3 INCH WALLS.
2. AN 8 FEET IN DIAMETER BY 5 FEET HIGH APPROVED REINFORCED PRECAST CONCRETE SOLID RING.
3. AN APPROVED REINFORCED PRECAST CONCRETE 6 INCH THICK SLAB TOP IN LAWN AREAS.
4. DROP T's MUST BE PINNED OR OTHERWISE FIRMLY ATTACHED.
5. LIQUID DEPTH MUST BE 4 FEET.
6. FLOW BAFFLE OR DROP 'T' REQUIRED.

TYPICAL CYLINDRICAL 1500 GALLON SEPTIC TANK WITH DOME



TYPICAL DETAILS OF CONSTRUCTION

1. A MINIMUM OF FOUR INCHES CONCRETE BOTTOM.
2. AN 8 FEET IN DIAMETER BY 6 FEET HIGH APPROVED REINFORCED PRECAST CONCRETE SOLID RING.
3. AN APPROVED REINFORCED PRECAST CONCRETE SOLID DOME OR SLAB MIN. 6" THICK.
4. THE OUTLET AND INLET PIPES MUST BE LOCATED WITHIN THE SOLID RING.
5. DROP T MUST BE PINNED OR OTHERWISE FIRMLY ATTACHED.
6. LIQUID DEPTH MUST BE 5 FEET.
7. FLOW BAFFLE OR DROP 'T' REQUIRED.

FIGURE 4

TYPICAL LEACHING POOL

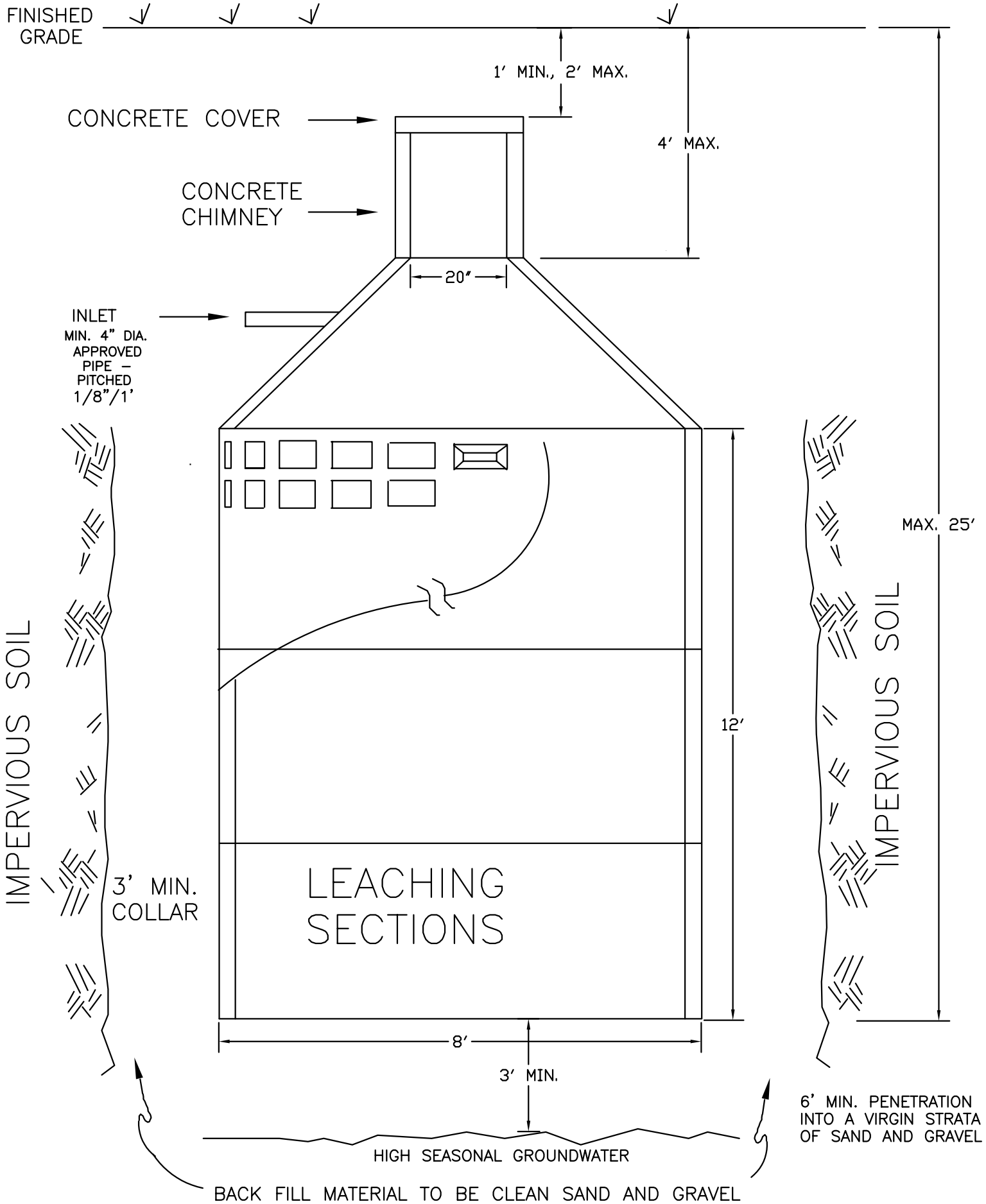
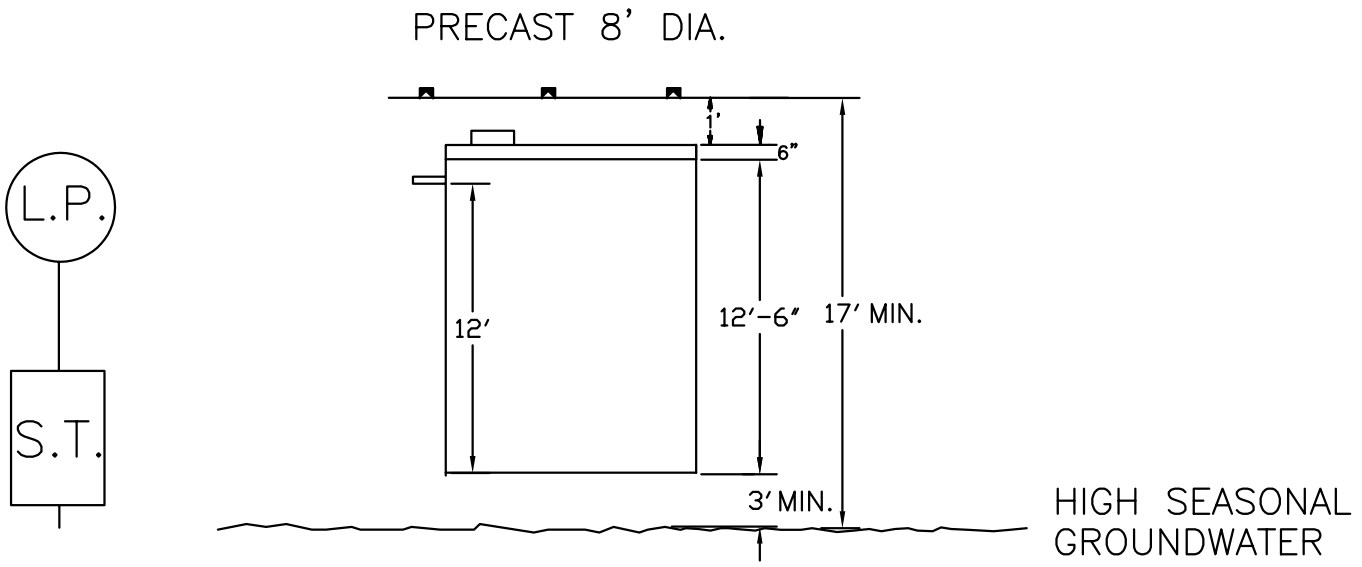
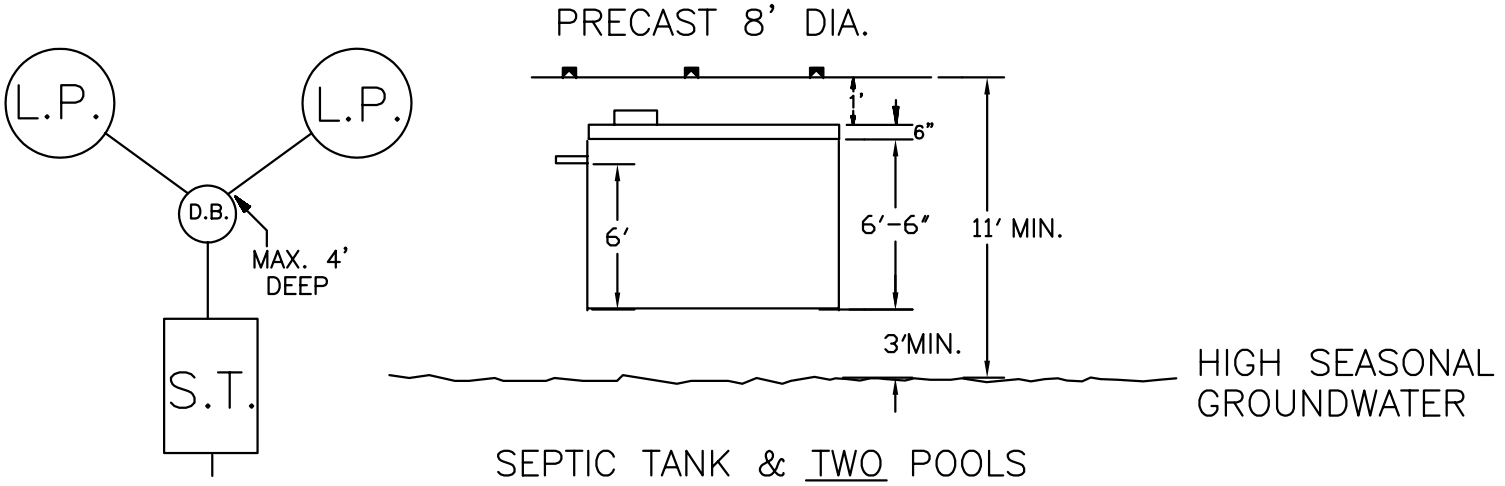


FIGURE 5

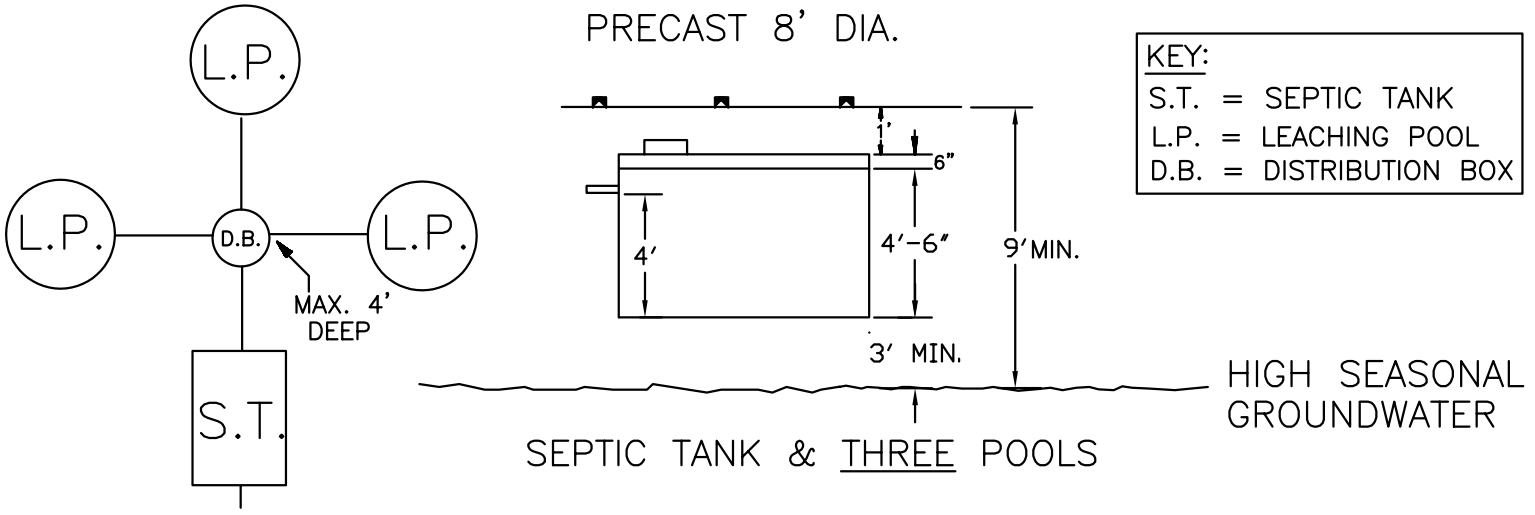
THE THREE TYPICAL MINIMUM SEPTIC TANK AND LEACHING POOL SYSTEMS FOR A ONE TO FOUR BEDROOM RESIDENCE



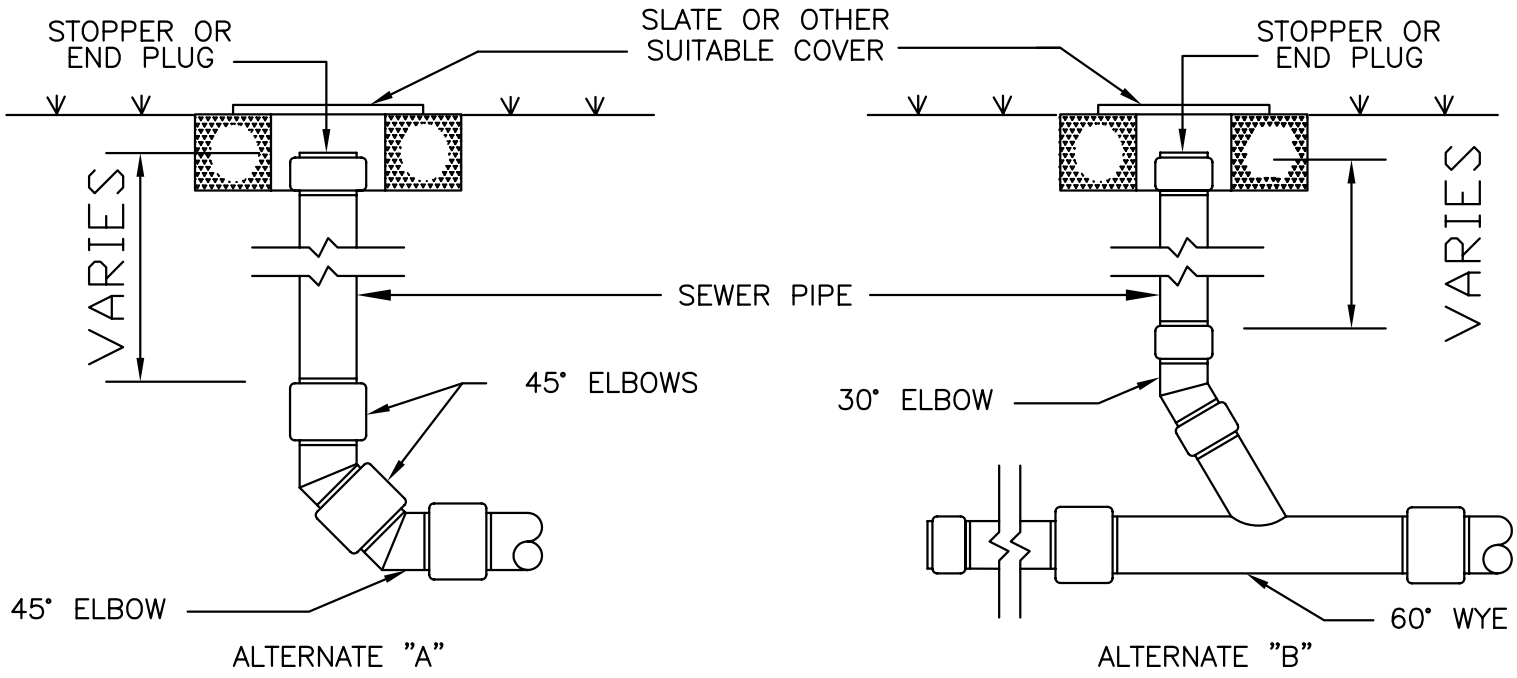
SEPTIC TANK AND ONE POOL



SEPTIC TANK & TWO POOLS



SEPTIC TANK & THREE POOLS



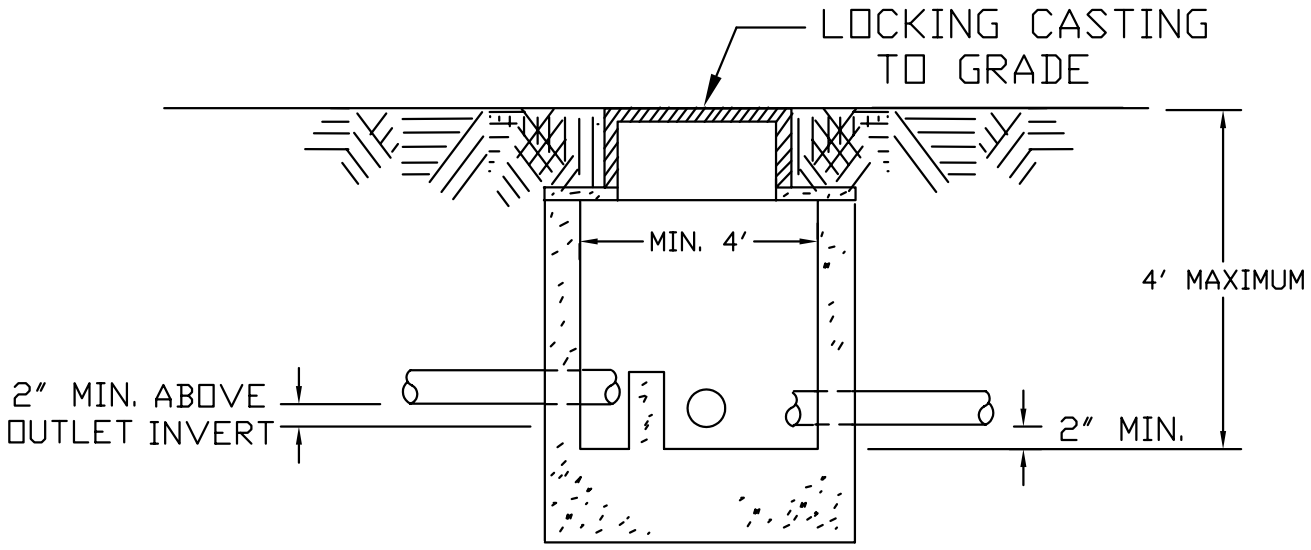
CLEANOUT DETAIL FOR AREAS NOT SUBJECT TO VEHICULAR TRAFFIC

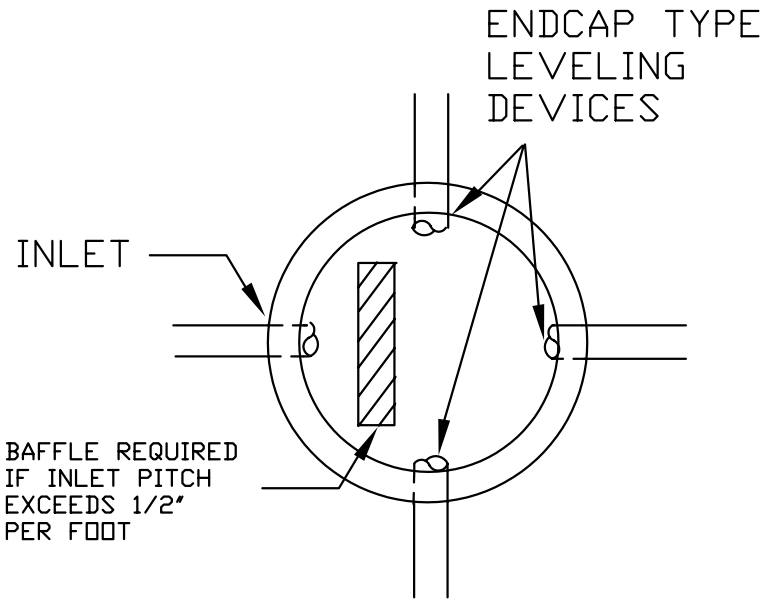
IN ALL VIEWS, ALTERNATE "A" IS FOR BENDS, ALTERNATE "B" IS FOR USE WITH BLDG. EXTENSION/CONNECTION

FIGURE 6
CLEANOUT DETAIL

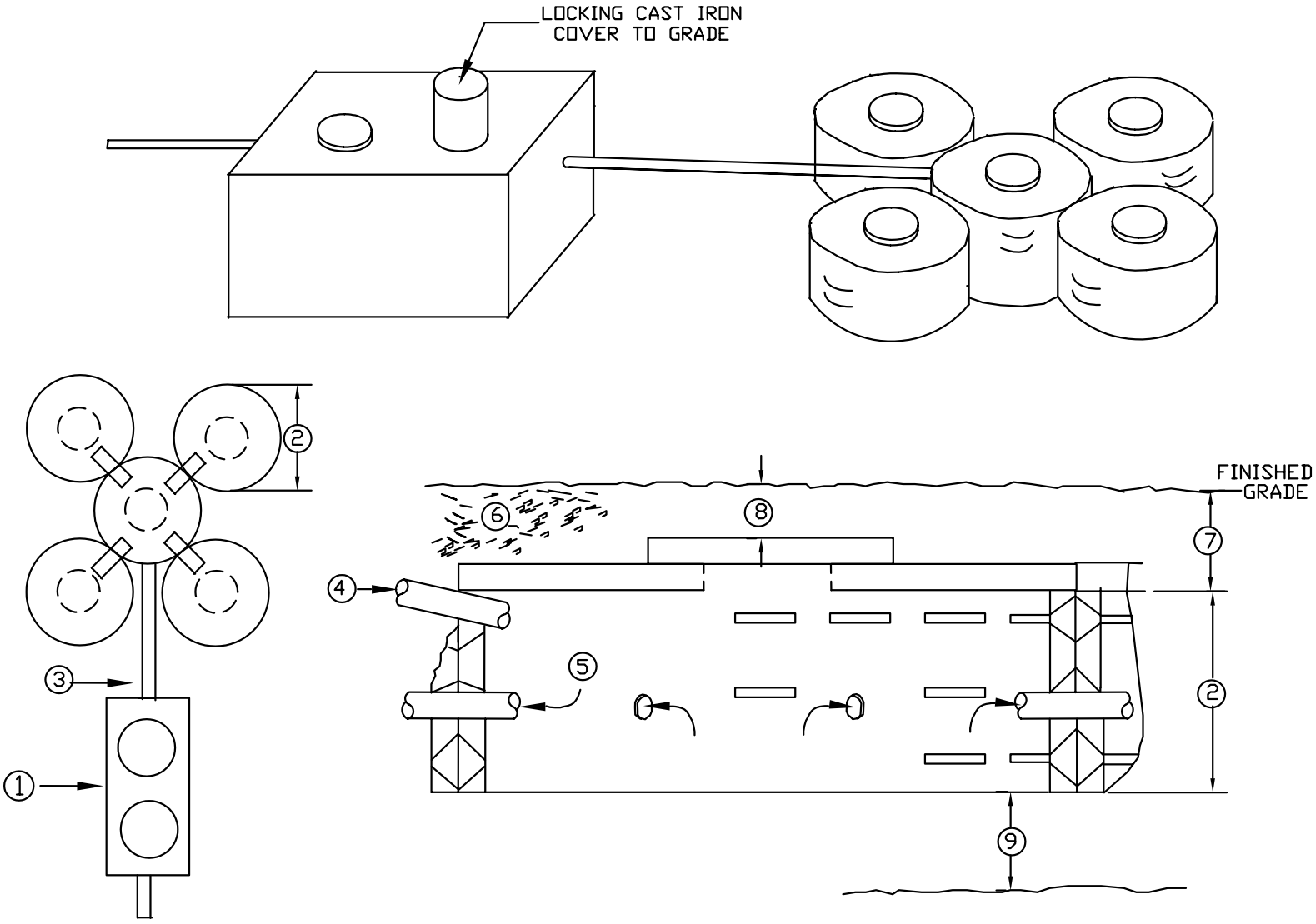
FIGURE 7

TYPICAL DISTRIBUTION BOX





ALTERNATE SEWAGE DISPOSAL SYSTEM FOR HIGH GROUNDWATER CONDITIONS FOR ONE TO THREE BEDROOM RESIDENCE.



DETAILS OF CONSTRUCTION

1. USE ONE (1) 1000 GALLON REINFORCED PRECAST CONCRETE SEPTIC TANK.
2. USE FIVE (5) 8 FT. DIAMETER, 2 FT. HIGH PRECAST CONCRETE LEACHING RINGS.
3. USE 4 INCH DIAMETER, APPROVED SEWER PIPE THROUGHOUT.
4. THE WASTELINE FROM THE SEPTIC TANK SHOULD ENTER THE MIDDLE RING AS HIGH AS POSSIBLE.
5. USE FOUR CROSS-OVER PIPES BETWEEN THE MIDDLE RING AND THE FOUR OUTSIDE RINGS, 8 INCHES ABOVE THE BOTTOM.
6. BACKFILL MATERIAL SHALL BE COARSE SAND AND GRAVEL.
7. SLABS SHALL BE BETWEEN 10″ AND 14″ BELOW GRADE.
8. SOLID CONCRETE COVER SHALL BE BETWEEN 6″ AND 12″ BELOW GRADE.
9. BOTTOM OF POOL SHALL BE A MINIMUM OF 2 FEET ABOVE HIGH SEASONAL GROUNDWATER.

FIGURE 9

ALTERNATIVE TO DISTRIBUTION BOX